

ABSTRACT

In a formulation comprising titanium dioxide as a photocatalyst and an amphoteric metal oxide (alumina or the like) or a basic metal oxide (barium oxide, strontium oxide or the like) as a material having a base point, when a nitrogen oxide (nitrogen monoxide) comes into contact with or approaches titanium dioxide, upon exposed to light, the carbon monoxide is oxidized to nitrogen dioxide (gas) by hydroxy radicals as an active oxygen species produced by titanium dioxide. As is apparent from the molecular structure, nitrogen dioxide is an acidic gas, alumina is an amphoteric metal oxide, and barium oxide and strontium oxide are a basic metal oxide. The oxygen atom thereof serves as a base point to an acid gas. Therefore, nitrogen dioxide is attracted and chemically bonded to the oxygen atom, held on the metal oxide, and kept close to titanium dioxide as the photocatalyst.